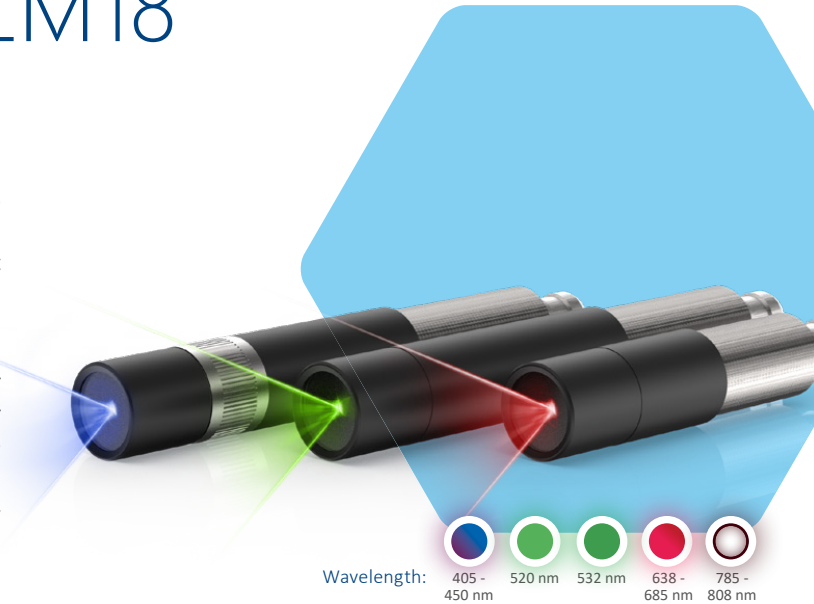


# Product Family ZM18

## The perfect allrounder

The ZM18 family is a long-proven product line that is useful as a positioning aid and in image processing applications. With a Ø20mm laser head and an M18 thread, they are easy to mount and can be used in a variety of ways.

The ZM18 lasers are available in blue, green, red, or infrared wavelengths and offer various electronic features. The modular product selector allows the assembly of product features either for a standard positioning task as well as for a high-end machine vision application with demands towards the communication and modulation of the laser. A easy-to-use focusing mechanics, optical output power up to 200mW, and the IP67 water and dust protection are standard features of this product family.



Easy Installation



Output Power up to 200 mW



Shock Resistant



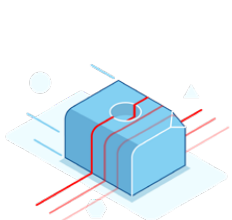
IP 67



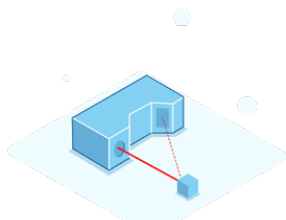
Different Wavelengths available

## Highlights

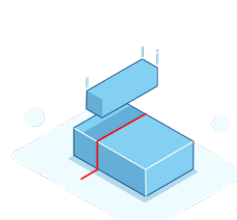
- Manual or fixed focus
- TTL modulation up to 500 kHz
- Analog intensity control
- Optical output power up to 200 mW
- Wavelengths from 405 - 830 nm
- Industrial standard
- IP67



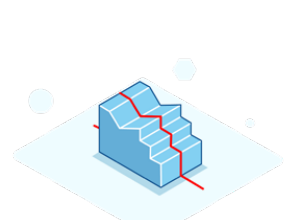
Machine Vision



Triangulation Sensors



High-Precision Positioning Tasks



3D-Measurement

### Order Code

|              |                                |             |             |            |       |
|--------------|--------------------------------|-------------|-------------|------------|-------|
| Z??          | M18                            | ?           | ?           | ?          | ?     |
| Output power | Product family<br>Size of head | Electronics | F-focusable | Wavelength | Optic |

## System specifications

|                           |                  |
|---------------------------|------------------|
| Wavelength                | nm               |
| Wavelength tolerance      | nm (typical)     |
| Wavelength drift          | nm / K (typical) |
| Output power              | mW               |
| Electronic versions       |                  |
| Pointing Stability        | μrad / °C        |
| Long-term power stability | (24h)            |
| Start-up time             | sec.             |
| Laser operation mode      |                  |

| 405-450                               | 520       | 532  | 635-685 | 785-830 |
|---------------------------------------|-----------|------|---------|---------|
| ±10                                   | -5<br>+10 | ± 1  | ±10     | ±4      |
| 0,06                                  | 0,06      | 0,06 | 0,25    | 0,25    |
| ≤160                                  | ≤40       | ≤40  | ≤120    | ≤200    |
| H3                                    | B3, H3    | B    | B, S3   | B, S3   |
| <15                                   |           |      |         |         |
| ±3 % over operating temperature range |           |      |         |         |
| <2                                    |           |      |         |         |
| APC                                   |           |      |         |         |

## Electrical specifications

|                          |                |
|--------------------------|----------------|
| Operating voltage        |                |
| Operating current        | (max. at 25°C) |
| Protection               |                |
| Electrical isolation     |                |
| Connection               |                |
| Power consumption        |                |
| Communication interfaces |                |

| 5 - 30 VDC  | 5 - 30 VDC | 5 - 30 VDC | 5 - 30 VDC | 5 - 30 VDC |
|---|------------|------------|------------|------------|
| <300 mA   | <300 mA    | <300 mA    | <400 mA    | <500 mA    |
| Over temperature protection and LED pre-failure indicator, reverse polarity and transient protection (ESD, burst & surge) |            |            |            |            |
| Potential-free housing  |            |            |            |            |
| 4-pin M12 plug  |            |            |            |            |
| <2,7 W  | <2,7 W     | <2,7 W     | <2 W       | <2,5 W     |
| I2C (on request)  |            |            |            |            |

## Optical specifications

|                                  |                    |
|----------------------------------|--------------------|
| Fan angles <sup>(1)</sup>        | Degrees            |
| Line straightness <sup>(2)</sup> | % (of line length) |
| Line uniformity <sup>(3)</sup>   | % (typical)        |
| Dot                              |                    |
| DOE                              |                    |
| Focus range                      | mm                 |

|   |
|---|
| 5°, 10°, 20°, 30°, 45°, 60°, 75°, 90° (homogeneous lines)<br>3°, 5°, 10°, 15°, 20°, 30°, 90° (Gaussian line profile)<br>20°, 30°, 110° (raster lens for homogeneous line profile) |
| <0,05 %   |
| <25 %   |
| Point elliptical, point circular  |
| Multi line, crosses, grids, circle with dot, etc.   |
| 100 mm up to 10.000 mm (or customized fixed focus available); ZM18-B-532 >200 mm  |

## Keynotes

|  |   |
|--|---|
| <sup>(1)</sup> Line length / fan angle | at >13,5 % I <sub>max</sub>   |
| <sup>(2)</sup> Line straightness       | Deviation from best fit line over the middle 80% of the line, for homogeneous lines                             |
| <sup>(3)</sup> Line uniformity         | Maximum relative optical power variation over the middle 80% of the line, for homogeneous lines and fixed focus |

## Electronic versions

|                             | B       | B3  | S3                                     | H3                                     |
|-----------------------------|---------|-----|--|--|
| Available Wavelengths       | 532-785 | 520 | 635-830                                | 405-520                                |
| Digital modulation          | na      | na  | <500 kHz                               | <200 kHz                               |
| Rise Time (Mod High => 90%) | na      | na  | <200 ns                                | <200 ns                                |
| Fall Time (Mod Low => 10%)  | na      | na  | <100 ns                                | <100 ns                                |
| signal level                | na      | na  | VIL_max: < +0,9 V<br>VIH_min: > +2,7 V | VIL_max: < +0,9 V<br>VIH_min: > +2,7 V |
| max. voltage range          | na      | na  | 0-30 VDC                               | 0-30 VDC                               |
| Analog modulation           | na      | na  | <10 Hz                                 | <10 Hz                                 |
| active range                | na      | na  | 0-1 VDC                                | 0-2 VDC                                |
| max. voltage range          | na      | na  | 0-30 VDC                               | 0-30 VDC                               |

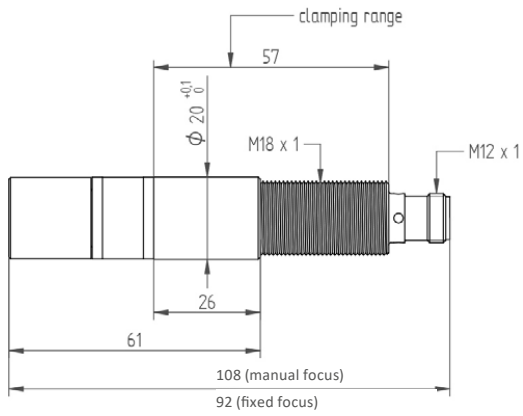
## Environmental conditions

|                                      |         |                                      |
|--------------------------------------|---------|--------------------------------------|
| Operating temperature <sup>(1)</sup> | °C / °F | -10 °C to +50 °C / 14 °F to +122 °F  |
| Storage temperature                  | °C / °F | -40 °C to +85 °C / -40 °F to +185 °F |
| Humidity                             | %       | <90 %, non-condensing                |
| Dissipated heat                      |         | <1 W                                 |

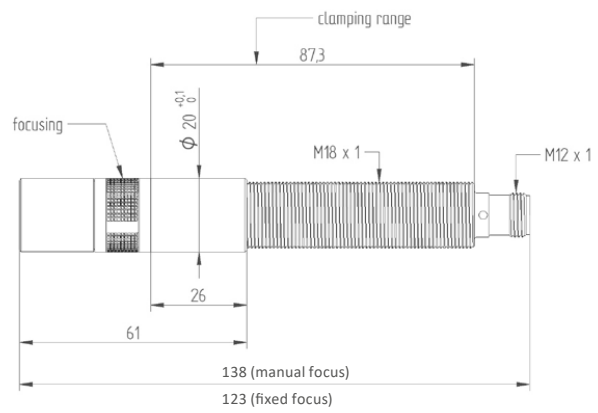
## Mechanical specifications

|                             |       | B                                  | B3                | S3                | H3                |
|-----------------------------|-------|------------------------------------|-------------------|-------------------|-------------------|
| Weight                      | g/lbs | 75 g<br>45 g / 0.1lbs<br>(532nm)   | 75 g / 0.17 lbs   | 85 g / 0.19 lbs   | 90 g / 0.20 lbs   |
| Length                      | mm    | 108 mm / 4,25 in<br>136 mm (532nm) | 108 mm<br>4,25 in | 128 mm<br>5,04 in | 138 mm<br>5,43 in |
| Diameter head $\varnothing$ | mm    | 20 mm                              |                   |                   |                   |
| Material                    |       | Aluminium                          |                   |                   |                   |
| Protection class            |       | IP67                               |                   |                   |                   |

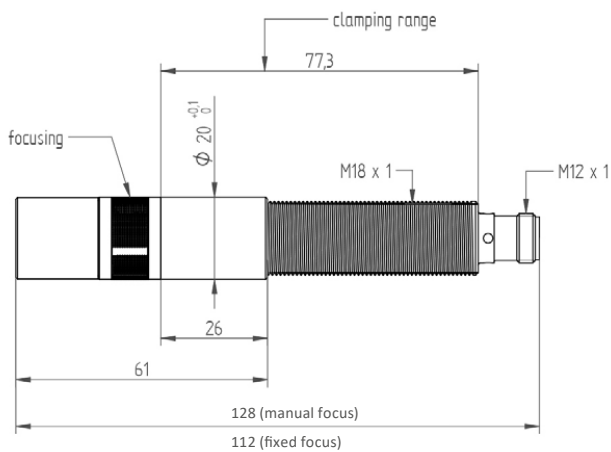
ZM18-B / ZM18-B3



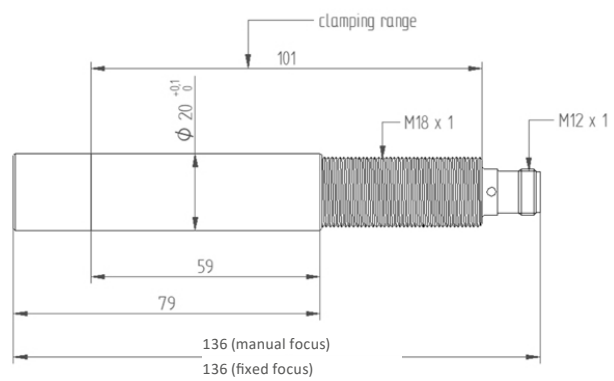
ZM18-H3



ZM18-S3



ZM18-B-532



## M12 4-pin: A-Coding Male Connector

According to IEC 61076-2-101

|       |                                      |
|-------|--------------------------------------|
| X 1.1 | 5 - 30 VDC, 15 VA                    |
| X 1.2 | Digital modulation TTL (only S3, H3) |
| X 1.3 | GND                                  |
| X 1.4 | Analog modulation (only S3, H3)      |